

CLAIMS

What is claimed is:

- 5 1. An isolated nucleic acid encoding a soluble Jagged protein.
2. The nucleic acid of claim 1, said nucleic acid comprising a portion of
sequence of SEQ ID NO:2, said portion comprising said soluble Jagged.
- 10 3. An isolated nucleic acid having at least 30% identity with from about
nucleotide number 1 to about nucleotide 3201 of SEQ ID NO:2.
4. An isolated nucleic acid encoding a soluble Jagged protein, said
nucleic acid having at least about 20% identity with SEQ ID NO:17.
- 15 5. The isolated nucleic acid of claim 4, said nucleic acid having the
sequence of SEQ ID NO:17.
6. An isolated nucleic acid encoding a soluble Jagged protein, said
20 soluble Jagged protein having at least about 40% identity with SEQ ID NO:18.
7. The isolated nucleic of claim 6, said nucleic acid encoding a soluble
Jagged protein having the sequence of SEQ ID NO:18.
- 25 8. The isolated nucleic acid of claim 1, said nucleic acid further
comprising a nucleic acid encoding a tag polypeptide covalently linked thereto.
9. The isolated nucleic acid of claim 8, wherein said tag polypeptide is
selected from the group consisting of a myc tag polypeptide, a myc-pyruvate kinase tag
30 polypeptide, a glutathione-S-transferase tag polypeptide, a maltose binding tag

polypeptide, green fluorescence protein tag polypeptide, an alkaline phosphatase tag polypeptide, a His6 tag polypeptide, an influenza virus hemagglutinin tag polypeptide, and a maltose binding protein tag polypeptide.

5 10. The isolated nucleic acid of claim 9, wherein said tag polypeptide is a myc tag polypeptide.

 11. The isolated nucleic acid of claim 1, said nucleic acid further comprising a promoter/regulatory sequence operably linked thereto.

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 12. A vector comprising the isolated nucleic acid of claim 1.

 13. A vector comprising the isolated nucleic acid of claim 6.

15 14. A recombinant cell comprising the isolated nucleic acid of claim 1.

 15. A recombinant cell comprising the isolated nucleic acid of claim 6.

 16. An isolated soluble Jagged polypeptide.

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 17. An isolated polypeptide encoded by the nucleic acid of claim 1.

 18. An isolated polypeptide encoded by the nucleic acid of claim 6.

25 19. The isolated polypeptide of claim 17, wherein said polypeptide shares at least about 20% identity with a polypeptide having the amino acid sequence of SEQ ID NO:18.

 20. The isolated polypeptide of claim 19, wherein said polypeptide is
30 SEQ ID NO:18.

21. The isolated polypeptide of claim 17, wherein said polypeptide has at least about 20% identity with from about amino acid residue 1 to about amino acid residue 1067 of the sequence of SEQ ID NO:1.

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22. The isolated polypeptide of claim 17, said polypeptide further comprising a tag polypeptide.

23. The isolated polypeptide of claim 22, wherein said tag polypeptide is selected from the group consisting of a myc tag polypeptide, a myc-pyruvate kinase tag polypeptide, a glutathione-S-transferase tag polypeptide, a maltose binding tag polypeptide, green fluorescence protein tag polypeptide, an alkaline phosphatase tag polypeptide, a His6 tag polypeptide, an influenza virus hemagglutinin tag polypeptide, and a maltose binding protein tag polypeptide.

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24. The isolated polypeptide of claim 23, wherein said tag polypeptide is a myc tag polypeptide.

25. A recombinant cell comprising the isolated soluble Jagged polypeptide of claim 17.

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26. A composition comprising an isolated soluble Jagged polypeptide in a pharmaceutically acceptable carrier.

27. A composition comprising an nucleic acid encoding a soluble Jagged protein in a pharmaceutically acceptable carrier.

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28. A pharmaceutical composition comprising a therapeutically effective amount of an isolated nucleic acid encoding a soluble Jagged polypeptide, or

a functionally equivalent derivative, or an allelic or species variant thereof, in a pharmaceutically acceptable carrier.

29. A pharmaceutical composition comprising a therapeutically effective amount of an isolated soluble Jagged polypeptide, or a functionally equivalent derivative, or an allelic or species variant thereof, in a pharmaceutically acceptable carrier.

30. A pharmaceutical composition comprising a recombinant cell comprising an isolated nucleic acid encoding a soluble Jagged polypeptide in a pharmaceutically acceptable carrier.

31. A pharmaceutical composition comprising a recombinant cell comprising an isolated soluble Jagged polypeptide.

32. A method of affecting angiogenesis in a system capable of angiogenesis, said method comprising contacting a cell with an angiogenic effective amount of an isolated soluble Jagged polypeptide, thereby affecting angiogenesis in a system capable of angiogenesis.

33. A method of affecting angiogenesis in a mammal, said method comprising administering to a mammal an angiogenic effective amount of an isolated soluble Jagged polypeptide, thereby affecting angiogenesis in a mammal.

34. The method of claim 33, wherein said isolated soluble Jagged polypeptide is administered by administering to said mammal at least one molecule selected from the group consisting of an isolated soluble Jagged polypeptide, an isolated nucleic acid encoding a soluble Jagged polypeptide, and a recombinant cell comprising an isolated nucleic acid encoding a soluble Jagged polypeptide.

35. A method of affecting differentiation of a cell, said method comprising contacting a cell with a differentiation effective amount of an isolated soluble Jagged polypeptide, thereby affecting differentiation of said cell.

5 36. The method of claim 35, wherein said cell is selected from the group consisting of a mesodermal-derived cell, an endodermal-derived cell, an ectodermal-derived cell, and a neurodermal-derived cell.

10 37. A method of identifying a compound capable of affecting differentiation of a cell, said method comprising contacting a recombinant cell comprising an isolated nucleic acid encoding a soluble Jagged protein expressed therefrom with a test compound and comparing the growth characteristics of said cell contacted with said compound with the growth characteristics of an otherwise identical cell not contacted with said compound, wherein a difference in the growth
15 characteristics of said cell contacted with said compound compared with the growth characteristics of said otherwise identical cell not contacted with said compound is an indication that said compound is capable of affecting differentiation of said cell.

20 38. A method of identifying a compound capable of affecting the binding of Jagged ligand to a Notch receptor, said method comprising contacting a recombinant cell comprising a nucleic acid encoding a soluble Jagged protein with a test compound and comparing the growth characteristics of said cell contacted with said compound with the growth characteristics of an otherwise identical cell not contacted with said compound, wherein a difference in the growth characteristics of
25 said cell contacted with said compound compared with the growth characteristics of said otherwise identical cell not contacted with said compound is an indication that said compound is capable of affecting the binding of Jagged ligand to a Notch receptor.

30 39. A method of identifying a compound capable of affecting angiogenesis, said method comprising contacting a recombinant cell comprising a

nucleic acid encoding a soluble Jagged protein expressed therefrom with a test compound and comparing the growth characteristics of said cell contacted with said compound with the growth characteristics of an otherwise identical cell not contacted with said compound, wherein a difference in the growth characteristics of said cell
5 contacted with said compound compared with the growth characteristics of said otherwise identical cell not contacted with said compound is an indication that said compound is capable of affecting angiogenesis.

40. A method of inhibiting expression of type I collagen in a cell, said
10 method comprising administering an expression inhibiting amount of soluble Jagged to a cell, thereby inhibiting expression of type I collagen.

41. The method of claim 40, wherein said soluble Jagged is administered as a substance selected from the group consisting of an isolated nucleic
15 acid encoding soluble Jagged, a vector expressing soluble Jagged, and an isolated soluble Jagged polypeptide.

42. A kit for affecting angiogenesis in a mammal, said kit comprising an angiogenic effective amount of an isolated soluble Jagged polypeptide, an
20 applicator, and an instructional material for the use of said kit.

43. A kit for affecting differentiation of a cell, said kit comprising a differentiation effective amount of an isolated soluble Jagged polypeptide, an applicator, and an instructional material for the use of said kit.
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44. A kit for inhibiting expression of type I collagen in a cell, said kit comprising an expression inhibiting amount of soluble Jagged, an applicator, and an instructional material for the use of said kit.